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Current Global Status and the Epidemiology of Entamoeba gingivalis in Humans: A Systematic Review and Meta-analysis

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Abstract

Purpose: Entamoeba gingivalis (E. gingivalis) is one of the members of the wide range of oral resident pathogens in humans, particularly found in dental plaques, surfaces of gingiva or teeth, interdental spaces and carious lesions. The purpose of the current review and meta-analysis was to determine the global prevalence of E. gingivalis infection and its association with oral diseases based on published literatures.

Materials and methods: Multiple English databases (PubMed, Scopus, Science Direct, Web of Science and Google Scholar) were explored for papers published until August 2020. A total of 52 studies (including 7596 participants) met the inclusion criteria.

Results: The overall prevalence of E. gingivalis was estimated to be 37% (95% CI 29-46%). With regard to different countries, the highest and lowest pooled prevalence of E. gingivalis infection were related to Jordan with 87% (95% CI 81-92%) and Portugal with 3% (95% CI 0-10%), respectively. Based on WHO regions, the highest prevalence was related to the region of the Americas with 56% (95% CI 31-79%). The infection was most prevalent in 46-55 mean age groups

[61% (95% CI 21-94%)]. Among different diagnostic methods, the highest rate of the pooled prevalence was related to the molecular [53% (95% CI 24-81%)] and the direct methods [36% (95% CI 25-47%)], respectively. Our analyses revealed that E. gingivalis infection was associated with 4.34-fold increased risk of oral diseases ($P < 0.05$).

Conclusion: Our findings revealed a high prevalence rate of the infection among periodontal disease patients with 37% (95% CI 20-57%). To conclude, it must be considered that E. gingivalis can be a risk factor associated with oral diseases and a wide range of research is needed to specify its role in the pathogenesis of these disorders.

Keywords: Entamoeba gingivalis; Prevalence; Systematic review; Worldwide; oral health.